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Date

28.2.00

## Table of Contents

Foreword

Introduction 4

Body 5

Reportable Outcomes 10

Conclusion 10

References 11

## Introduction

This report summarises the research undertaken in the second year (9 February 1999 to 8 February 2000) of the 'Study into War Syndromes from 1900'. The project was designed to answer two questions:

1. Whether soldiers suffering from post-combat syndromes in different wars at different time experience the same or similar clusters of symptoms.
2. Whether the morbidity and mortality rates of servicemen with post-combat syndromes are greater than a control population of veterans with equivalent levels of physical disability.

To answer the first question, a methodology was designed to compare randomly-selected samples of soldiers drawn from three campaigns suffering from characteristic functional illnesses. There were to be 200 men in each group and two disorders for each war. For the Boer War the disorders identified were Disordered Action of the Heart (DAH) and psychogenic rheumatism. For the First World War, DAH and shell shock (or neurasthenia as it was later re-categorised) were chosen and for the Second World War non-ulcer dyspepsia and psychoneurosis were included. In addition, smaller samples for the Korean War and the campaign in Malaya have been selected for comparison. These cases will then be contrasted with a random sample of UK servicemen in treatment for Gulf War syndrome.

To answer the second question, it is proposed to compare 700 servicemen with DAH from the First World War with 700 soldiers who had suffered gunshot wounds. They will be matched to a similar level of disability, though the DAH group will have a slightly higher percentage to counteract the prejudice then expressed by physicians against psychological disorders. The precise adjustment will be informed by analysis of bias in the two categories of disability. The death certificates of all 1,400 veterans will allow a comparison of their mortality rates.

The investigation conducted over the last twelve months has fallen into three areas:

**Collection of Data:** Work has continued at the Public Record Office on the Boer War pension files where 5,300

(out of a total 6,276) individual files having been surveyed. In addition, war pension files relating to the Second World War, Malaya and Korea held by the Department of Social Security (DSS) at Nelson and Heywood in Lancashire have been surveyed. As a result, 200 veterans suffering from psychoneurosis were selected randomly, together with two smaller samples diagnosed with effort syndrome and non-ulcer dyspepsia. Most of these files were then sent to the RAMC HQ Mess at Millbank, London, so that the data could be collected in a standardised manner.

**Further archival research:** To supplement the information held on the database and to broaden our understanding of post-combat syndromes, much research has been undertaken in medical and military archives. The Wellcome Institute for the History of Medicine holds extensive records on the development of military psychiatry, including the papers of the Royal Army Medical College. In addition, military sources at the Imperial War Museum and the National Army Museum have been examined.

**Refining the Database:** as data has been entered using the Access programme, various refinements have been introduced to increase the amount of information held and to facilitate the extraction and analysis of information.

## Body

### *Collection of Data*

As at 8 February 2000, the research team had documented 1,088 cases (89 per cent) of the 1,200 needed for the historical element of the investigation. The work was undertaken as follows:

Researcher	E. Jones	H. McCartney	D. Poynter	Total
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**Early Wars (India/  
Egypt/Afghan/Sudan)**

Irritable Heart	26			26
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**Boer War**

DAH	193 (1)			193
Rheumatism	170			170

**First World War**

DAH	47 (5)	113 (13)		160
Shellshock/ Shock/Neurasthenia		198 (24)	198	
Gassed	3	23		26
Women (nurses)				

**Second World War**

Effort Syndrome	3	30	11	44
Non-ulcer dyspepsia		38	25	63
Psychoneurosis	3	120 (23)	67 (20)	190

**Malaya and Korea**

Non-ulcer dyspepsia	1	2		3
Psychoneurosis		14	1	15

<b>Totals</b>	<b>444</b>	<b>332</b>	<b>302</b>	<b>1,088</b>
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Note: figures in parentheses indicate files rejected because of insufficient information or because they did not meet the criteria of the study.

Research into the PIN71 files at the PRO is almost complete with over 5,300 of the 6,237 files having been surveyed. This will generate an estimated 30 cases from late Victorian wars including Egypt, Sudan, Afghanistan, the Crimea and various operations in India. These are rare and important records that should allow us to document the rise of post-combat syndromes. We can confidently predict that there will be 200 cases of DAH for the Boer War and a further 200 cases of psychogenic rheumatism.

For the First World War, PIN26 files at the PRO have been surveyed. To date, we have collected 160 cases of DAH, having had to reject a number because they were later found to be suffering from organic disorders such as malaria or were serving in the RAF. The shell shock/neurasthenia sample is virtually complete. Work has also begun on soldiers subjected to gas attack, a total of 26 having been recorded. However, the task of extracting these has proved more complex than envisaged.

The indexes record 309 veterans awarded a war pension for the effects of gas or gas poisoning. An examination of these has shown that many were legitimate cases with identifiable damage to lungs, skin and eyes. Soldiers that had minimal exposure and no lasting objective signs and yet suffered from unexplained symptoms were re-categorised as DAH (WIHM, RAMC/2045 Meakins and Walker, 1918, 19-26). It is necessary, therefore, to examine all 309 gas pensioners to distinguish the organic cases from the functional ones, and to request large numbers of DAH files in order to identify those that were gas cases rather than cardiac admissions. This will extend the time that it will take to extract a random sample, though, given the size of the total DAH population (1,385), it should certainly ensure the collection of 200 cases.

The most difficult task has been to assemble representative sample for the Second World War because of the complexity and size of the DSS records at Heywood and Nelson. The DSS agreed that closed files (those cases no longer in payment) could be sent to London where we could work through them more efficiently. Accordingly, 700 randomly-selected files were transported to the RAMC Mess at Millbank. The majority related to the Second World War and had diagnoses of psychoneurosis and non-ulcer dyspepsia. In addition, smaller numbers were extracted that related to the Korean War and the campaign in Malaya. Of the 700, nearly 500 files were rejected after detailed inspection. Most of these referred to gastrointestinal cases. In order to assemble a sample of dyspepsia patients, it had been necessary to pull a large number of veterans with a war pension for duodenal ulcer as very few awards had been made for dyspepsia alone. On closer inspection, a substantial number had repeated barium-meal x-rays that showed evidence of an active peptic ulcer or a dormant crater. However, a large number had either repeated negative findings or conflicting radiological evidence. Cases where the x-rays gave consistent negative results were included in the study and those with conflicting evidence were examined by a consultant radiologist for a second opinion. Adopting a conservative policy, it was concluded with reasonable certainty that in about one-third of these cases no ulcer had been present, and they were added to the sample.

Considerable problems were encountered in finding cases of psychoneurosis and dyspepsia from Korea and Malaya. Troops deployed there represented a very small proportion of the UK's armed forces, and, though veterans of both



campaigns were found, very few were had a pension with either diagnosis. It is possible that very detailed and time-consuming research in the DSS archives may reveal more cases. Given the limited time left to the project, it is anticipated that the Korea and Malaya samples will remain relatively small.

To date, women are the only group that have not yet been researched. In the PRO's PIN26 files, there are 301 military nurses that were awarded a pension after the First World War. An analysis of these by diagnosis has shown that 44 suffered from neurasthenia and other psychological disorders, 28 from functional debility, and 67 from DAH and other non-organic cardiac conditions. It should be possible, therefore, to gather two samples of 75 cases to compare with the male groups of DAH and shell shock.

#### ***Archival Research this period***

A considerable amount of background archival research has been undertaken at a variety of locations. This has included:

a) The Wellcome Institute for the History of Medicine (WIHM):

The RAMC collection has been thoroughly researched including the reports and accounts of army psychiatrists from various theatres in the Second World War, together with official War Office publications on the treatment of psychiatric casualties. In addition, the following collections have also been studied:

PP/Lew, The papers of Sir Thomas Lewis, the cardiologist, appointed to treat servicemen suffering from DAH in the First World War.

PP/CMW, The papers of C.M. Wilson, Lord Moran, author of *The Anatomy of Courage*, who served as a regimental medical officer with the Royal Fusiliers during the First World War.

PP/SHF, The papers of Major S.H. Foulkes, RAMC psychiatrist, who worked at the Northfield Military Hospital during the Second World War.

PP/WWS, The papers of William Sargent, psychiatrist, who treated large numbers of servicemen after the Dunkirk evacuation at Sutton EMS Hospital.

b) The National Army Museum:

Histories of individual regiments and detailed studies of campaigns have been researched to fill gaps and provide supplementary information for the database.

c) The Imperial War Museum, Sound Archive:

28 interviews of servicemen and RAMC physicians and psychiatrists have been transcribed relating to the First World War, Second World War and Korea. They are an invaluable record of personal experiences.

### **Mortality Study**

As originally planned, the intention was to compare 700 cases of DAH (that is an additional 500 from the symptom study) and to contrast them with 700 lower limb amputees. However, the PRO catalogues do not allow the easy identification of amputees in any great numbers, and it is important to match the level of disability in each group. It may be possible to circumvent this difficulty by undertaking the work at the DSS repository in Nelson where the final group of First World War pensions are stored. These will not be sent to the PRO for permanent retention but are due for destruction. Because they are on open shelves, they can be readily accessed. The name, date of birth, occasionally the death certificate, diagnosis and level of disability awarded can be noted relatively quickly. It will then be necessary to contact the Registrar of Births, Marriages and Deaths to fill in the missing details.

Because physicians in the First World War exhibited a bias against psychological disorders, it is reasonable to assume that veterans with diagnoses of shell shock or neurasthenia would have been treated less generously than an ex-serviceman with a gunshot wound. It is proposed to assess the level of bias by comparing the official disability schedule with a sample of actual awards for both groups of pensioners. This figure will then be used to adjust the percentage disability chosen for the veterans with gunshot wounds. Awards for neurasthenia were commonly 30 per cent and, depending on the degree of bias found, it may be necessary to select pensioners whose wounds were assessed at 20 per cent to achieve an equivalent level of disability.

### **Staff**

In the months of November and December 1999, Denise Poynter was unable to work through sickness. At the end of this period, she resigned as research assistant on the project. Helen McCartney was offered a permanent lecturer post at the Joint Staff College in December and indicated her intention to resign at the end of March 2000. Accordingly, two posts were advertised in January and over fifty requests for application forms have been received. We intend to interview short-listed candidates at the end of February so that the successful candidates can begin work in April.

### Reportable Outcomes

Although the main data set is still being assembled, the background archival research has allowed us to begin to publish. One paper in the *BMJ* chronic fatigue has been published and a second in *Military Medicine* is due out in April 2000. A book chapter has also been accepted and will be published later this year. We will continue to submit papers to journals as the main database is being analysed. The current list is as follows:

Jones, E. and Wessely, S. (1999) Case of chronic fatigue syndrome after Crimea war and Indian mutiny. *BMJ* 2: 1645-57.

Jones, E. and Palmer, I. (2000) Army Psychiatry in the Korean War: the experience of 1 Commonwealth Division. *Military Medicine* (in press, April edition).

Jones, E. and Wessely, S. (2000) The impact of total war on the practice of British psychiatry. In R. Chickering and D.S. Mattern, *The Shadows of Total War, Europe, East Asia and the United States 1919-1939*. Cambridge: Cambridge University Press (in press).

### Conclusion

The study encountered a number of unforeseen difficulties during 1999. First, the complexity of the DSS archives resulted in several months surveying work before random samples of Second World War veterans could be extracted. Secondly, it proved difficult to identify significant numbers of veterans awarded a pension for effort syndrome. As a result, a third diagnosis, non-ulcer dyspepsia was selected, though this too was not without its problems. Most servicemen with gastro-intestinal symptoms were diagnosed as suffering from a peptic ulcer, though the clinical evidence was often far from convincing. Accordingly, it was necessary to survey a large number of pensioners to collect a random sample of servicemen that had chronic and disabling dyspepsia without any sign of an ulcer. This task is now virtually finished.

Hence, the symptom-comparison research remains on course for completion within the three-year schedule, and the five-month extension should enable us to undertake the two subsidiary studies of First World War soldiers subjected to gas attack and of female nurses sent to hospitals in France and Belgium. The major task of analysing the substantial database is scheduled to begin in early summer.

## References

The following is a selected bibliography of the secondary sources studied during the last year.

- Anonymous. Poisons in warfare. *Lancet* 1915; 2:(10 July) 81.
- Anonymous. Gas poisoning: physiological symptoms and clinical treatment. *Lancet* 1915; 2:(4 December) 1248-1249.
- Anonymous. Chlorine poisoning. *Lancet* 1915; 1:(15 May) 1036-1037.
- Anonymous. The German use of asphyxiating gas. *British Medical Journal* 1915; 1:(1 May) 774-775.
- Anonymous. Medical arrangements of the British Expeditionary Force, Gas poisoning. *British Medical Journal* 1915; 1:(15 May) 861-862.
- Anonymous. Shell shock, gas poisoning and war neuroses. *British Medical Journal* 1917; 1:(19 May) 656.
- Anonymous. War gas poisoning. *British Medical Journal* 1918; 2:(10 August) 138-139.
- Anonymous. The abolition of gas warfare. *British Medical Journal* 1918; 2:(30 November) 611.
- Anonymous. Work of the Pensions Ministry. *British Medical Journal* 1922; 1:(14 January) 68-68.
- Anonymous. Report of the War Office Committee of Enquiry into 'Shell-Shock'. 1922; London: HMSO.
- Anonymous. Dyspepsia and cardiovascular neuroses in wartime. *British Medical Journal* 1941; 1:(7 June) 858-859.
- Anderson C, Jeffrey M, Pai NM. Psychiatric casualties from the Normandy beach-head, First thoughts on 100 cases. *Lancet* 1944; 2:218-221.
- Bogacz E. War neurosis and cultural change in England, 1914-22: the work of the War Office Committee of Enquiry into 'Shell-Shock'. *Journal of Contemporary History* 1989; 24:227-256.
- Boland EW. Psychogenic rheumatism: the musculoskeletal expression of psychoneurosis. *Annals of Rheumatic Diseases* 1947; 6:195-203.
- Bourke J. *Dismembering the Male, Men's Bodies, Britain and the Great War*. London: Reaktion Books, 1996.
- Bourke J. Disciplining the Emotions: fear, psychiatry and the Second World War. In: Cooter R, Harrison M, Sturdy S, editors. *War, Modernity and Medicine*. Thrupp, Stroud: Sutton Publishing, 1998:225-238.
- Bowlby AA, Tooth HH, Wallace C, Calverley JE, Kilkelly S-M. *A Civilian War Hospital, Being an account of the work of the Portland Hospital, and of experience of wounds and sickness in South Africa, 1900*. London: John Murray, 1901.

Cassidy M. Discussion on dyspepsia in the forces. Proceedings of the Royal Society of Medicine 1941; 34:411-426.

Clark JM. The Costs of the World War to the American People. New Haven: Yale University Press, 1931.

Cooter R, Harrison M, Sturdy S. War, Medicine and Modernity. Thrupp, Stroud: Sutton Publishing, 1998.

Cooter R. Malingering in Modernity: psychological scripts and adversarial encounters during the First World War. In: Cooter R, Harrison M, Sturdy S, editors. War, Medicine and Modernity. Thrupp, Stroud: Sutton Publishing, 1998:125-148.

Coplands E. Some Observations on Neurasthenia and Shell-shock. Lancet 1931; 2:(31 October) 960.

Cow DV. The use of atropine in the treatment of those suffering from the effects of irritant and other gases. Lancet 1915; 1:(29 May)1147-1148.

Cumming A, Maxwell PB, Laing PS. Report upon the State of the Hospitals of the British Army in the Crimea and Scutari. London: 1855.

Dean, Eric T. Shook over Hell, Post-Traumatic Stress, Vietnam and the Civil War. 1997. Cambridge, Massachusetts, Harvard University Press.

Fenton N. A postwar study of a typical group of war neuroses cases in 1919-20 and 1924-25. In: Ireland MW, editor. The Medical Department of the United States Army in the World War, Volume X, Neuropsychiatry. Washington: US Government Printing Office, 1929: 443-474.

Fenton N. Shell Shock and its aftermath. St Louis: C.V. Mosby, 1926.

Fenton N, Morrison DE. A bibliography of American contributions to war psychiatry. American Journal of Psychiatry 1926; 6:507-517.

Glass AJ. Psychotherapy in the combat zone. American Journal of Psychiatry 1954; 110:725-731.

Gowers WR. Lumbago: its lessons and analogues. British Medical Journal 1904; 1:(16 January 1904)117-121.

Graham JG, Kerr JDO. Digestive disorders in the forces. British Medical Journal 1941; 1:473-476.

Grant RT. Observations on the after-histories of men suffering from the effort syndrome. Heart 1926; 12:121-142.

Handfield Jones C. Record of a case of Crimean fever. Lancet 1855; 2:461-462.

Harrison T, Clarke D. The Northfield Experiments. British Journal of Psychiatry 1992; 160:698-708.

Hebblethwaite AS. The treatment of chlorine gas poisoning by venesection. British Medical Journal 1916; 2:(22 July)107-109.

Hendry AW, Horsburgh EL. Some general notes on suffocation by poisonous gases with detailed notes on one

fatal case. British Medical Journal 1915; 1:(5 June)964-965.

Hutchinson JH. The incidence of dyspepsia in a military hospital. British Medical Journal 1941; 2:(19 July) 78-81.

Hyams KC, Roswell RH. Resolving the Gulf War syndrome question. American Journal of Epidemiology 1998; 148:(4) 339-342.

Jennings D. Perforated peptic ulcer, Changes in age-incidence and sex-distribution in the last 150 years. Lancet 1940; 1:444-447.

Lewis A. Psychiatric aspects of Effort Syndrome. Proceedings of the Royal Society of Medicine 1941; 34:533-540.

Meakins JC, Walker TM. Changes observed in the heart and circulation and the general after-effects of irritant gas poisoning. London: Medical Research Committee, 1918, 19-26.

Miller J, Rainy H. A note on the blood changes in gas poisoning. Lancet 1917; 1:(6 January)19-20.

Miller J. A blood change in gas poisoning. Lancet 1917; 1:(26 May)793-796.

Palmer H. Forward Psychiatry in the Army. Proceedings of the Royal Society of Medicine 1945; 39:137-143.

Parkinson J. Effort syndrome in soldiers. British Medical Journal 1941; 1:(4188)545-549.

Paulett JD. Low back pain. Lancet 1947; 2:(23 August 1947)272-276.

Payne RT, Newman C. Interim report on dyspepsia in the army. British Medical Journal 1940; 2:819-821.

Penfield W, Cone WV. The special hospital in time of war. Archives of Neurology and Psychiatry 1943; 50:193-196.

Richter D. Chemical soldiers, British Gas Warfare in World War 1. London: Leo Cooper, 1992.

Riley ID. Perforated peptic ulcer in war-time. Lancet 1942; 2:485

Roberts AA. The Poison War. London: William Heinemann, 1915.

Sargant W, Craske N. Modified insulin therapy in war neuroses. Lancet 1941; 2:212-214.

Spiers EM. Chemical Warfare. Houndsmills, Basingstoke: Macmillan Press, 1986.

Stokes JW, Banderet LE. Psychological aspects of chemical defense and warfare. Military Psychology 1997; 9:(4)395-415.

Wainwright L. What is the gas? Lancet 1915; 2:(24 July) 198.

Waller W. The Veteran Comes Back. New York: Dryden Press, 1944.

Wilson CM. Treatment of functional dyspepsia. British Medical Journal 1936; 1:(21 March)592-594.

Wilson WD. Report on the Medical Arrangements in the South African War. London: HMSO, 1904.